Remarks

The Office Action dated September 25, 2009 has been received and reviewed. Claims 1 and 11-14 having been amended, claim 6 having been cancelled, without prejudice, and claims 16-25 having been added, the pending claims are claims 1-4 and 7-25. Reconsideration and withdrawal of the rejections are respectfully requested.

Claims 1 and 11-14 have been amended to delete some language and incorporate the subject matter of claim 6 (with corrections of typographical errors). Support for the amendments may be found throughout the originally-filed specification and specifically at, for example, page 8, line 23 to page 9, line 11 and the claims.

Support for new claims 16-25 may be found throughout the originally-filed specification and specifically at, for example, page 9, lines 21-23 and page 10, lines 12-13.

Entry and consideration of the amendments are requested.

The 35 U.S.C. §112, Second Paragraph, Rejection

The Examiner rejected claims 6 and 8 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner alleged that claims 6 and 8 each improperly broadened the scope of claim 1 and lacked antecedent basis in claim 1. Claim 6 has been cancelled, rendering the rejection moot. To the extent that the rejection may apply to the pending claims, Applicants traverse the rejection and provide the following remarks.

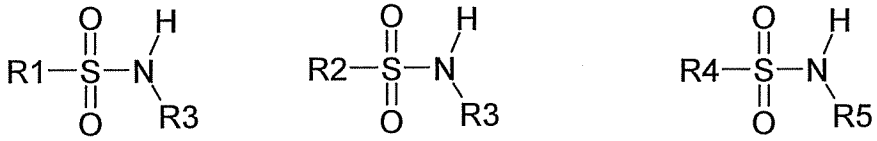
Applicants, without acquiescing to the rejection or supporting allegations and merely to expedite prosecution of the present application, have amended claim 1 to delete some language and incorporate the subject matter of claim 6. Such amendment renders the rejections moot.

Reconsideration and withdrawal of the rejection based on §112, second paragraph, are requested.

The 35 U.S.C. §103 Rejections

The Examiner rejected claims 1-4 and 6-15 under 35 U.S.C. §103(a) as being unpatentable over Eckhardt et al. (U.S. Patent No. 2003/0153726 A1) in view of Schmitt et al. (U.S. Patent No. 4,167,618). Claim 6 has been cancelled, rendering the rejection of claim 6 moot. Without acquiescing to the Examiner's rejection or supporting allegations and merely to expedite prosecution of the present application, claims 1 and 11-14 have been amended to recite a dental composition including, among other things, a compound having an SO_2-NH group, wherein the compound is represented by the recited formulas.

Insofar as this rejection applies to the presently pending claims, it is respectfully traversed. As currently claimed, each of the independent claims incorporates a compound having an SO_2-NH group, wherein the compound is represented by at least one of the following formulas:



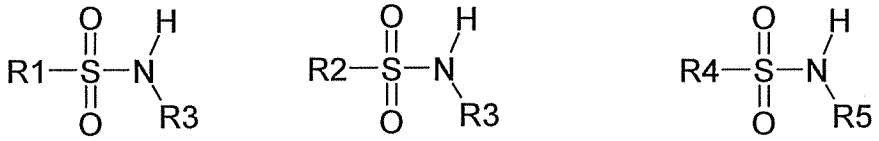
wherein R1-R5 are as recited in the claims. Neither of the cited documents discloses a dental composition comprising an SO_2-NH group-containing component as recited in the presently pending claims.

Eckhardt et al. do not specify the amides which might be used as inert diluents. There is no disclosure that the amides have to comprise an SO_2-NH group. Eckhardt et al.'s phrase "amides of alkylsulfonic acid and arylsulfonic acids" (paragraph [0049]) does not only comprise amides having an SO_2-NHR group, but also amides comprising an SO_2-NH_2 group or an SO_2-NR_2 group, wherein R is different from H.

Further, there is no teaching or suggestion of any advantage provided by the claimed compounds in Eckhardt et al. It has been found that by incorporating a compound having an SO_2-NH group (as presently recited) into the polyether containing composition, the setting speed can be enhanced. Thus, the amides used are not inert in the sense they are described by Eckhardt

et al. (at paragraph [0049] it is stated "or amides of alkylsulfonic acid and arylsulphonic acids used as inert diluent" (emphasis added)). An inert diluent typically does not have any effect on the reaction speed.

Thus, in order to arrive at the claimed subject matter, the person skilled in the art has to make the following selections: (1) identify from the group of possible compounds suggested as inert diluents the esters or amides of alkylsulfonic acids and arylsulfonic acids; (2) select the amides and not the esters of said acids; (3) select the compounds represented by at least one of the following formulas:



and (4) select each of groups R1-R5 as presently claimed (e.g., wherein R1 is a moiety selected from the group consisting of C_1-C_{22} alkyl, C_2-C_{22} alkenyl, C_2-C_{22} alkinyl, C_7-C_{22} arylalkyl and C_3-C_{22} cycloalkyl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and/or up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S, R2 is a moiety selected from the group consisting of C_6-C_{18} aryl, C_7-C_{22} alkylaryl, C_2-C_{22} cycloalkylaryl, C_7-C_{22} alkenylaryl and C_7-C_{22} alkinylaryl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S, R3 is H, R1, or R2, R4 is R1 or R2, and R5 is a chemical linkage to a polymer).

By using these particular substances, it has been observed that the speed of set can be improved (that is, providing a dental composition with a shorter working time). Experimental evidence of this effect (showing that sulfonamides with an SO_2-NRR' (R = alkyl, R' = alkyl) group do not accelerate the speed of cure in the same manner as sulfonamides with an SO_2-NHR group) has been provided in the Declaration of Dr. Thomas Klettke submitted July 14, 2009 or sulfonamides with an SO_2-NH_2 group, as shown in the Specification at Entry 14 of Table 6.

Applicants are unclear as to the Examiner's intent at page 3 of the Office Action dated September 25, 2009, where the Examiner noted that the sulfonamide with an SO_2-NH_2 group in Entry 14 of Table 6 of the Specification shows similar results as the sulfonamide with an SO_2-NHR group of Entry 13 in the Declaration. To the extent that the Examiner intended to show that using the claimed sulfonamides with an SO_2-NHR group or SO_2-NH_2 group improves, for example, the speed of set, whereas using sulfonamides with an SO_2-NRR' (R = alkyl, R' = alkyl) does not in the same manner, Applicants agree. If this was not the Examiner's intent, appropriate clarification is respectfully requested.

The Examiner alleged that the scope of the claims is broader than the showing in the Declaration of Dr. Thomas Klettke. (Office Action dated September 25, 2009, page 3.) Although this is true, the experimental data in the Declaration establish that Eckhardt et al.'s mere disclosure of "amides of alkylsulfonic acids and arylsulphonic acids used as inert diluent" (emphasis added) does not necessarily disclose or suggest the subject matter of the present claims. Applicants submit that the dental compositions of the present claims offer enhanced setting speeds and that Eckhardt et al. fail to offer any guidance to one of skill in the art to select the presently recited components and form a composition therewith.

The Examiner also alleged, "Applicant has admitted that amides of alkylsulfonic acids and arylsulfonic acids would encompass the instant species, and thus there would be no dispute that the instant compound with SO_2-NHR group would be an obvious variation of the amides taught by Eckhardt et al." (Office Action dated September 25, 2009, page 3.) Applicants disagree. Even assuming *arguendo* that Applicants stated that Eckhardt et al.'s phrase "amides of alkylsulfonic acid and arylsulfonic acids" (paragraph [0049]) includes a number of compound classes, Applicants have not admitted that the compounds recited in the present claims are obvious in light of Eckhardt et al.'s disclosure. Given the number of variables which must be selected, the nature and significance of the differences between Eckhardt et al. and the present claims, and given the unpredictable nature of the technology, Applicants submit that the enhanced setting speeds would not be obvious to one of ordinary skill in the art. Eckhardt et al.

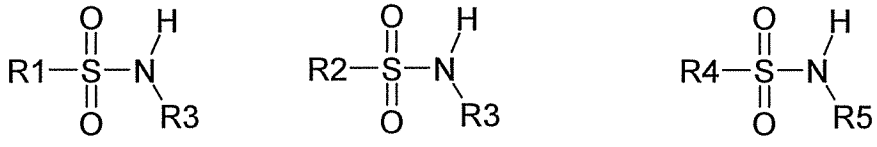
have provided no guidance to aid one of skill in the art to choose any particular amides of alkylsulfonic acids and arylsulfonic acids, much less the presently recited compounds.

In order to obtain this advantage (shorter working time; more rapid curing) Eckhardt et al. suggest adding an antacid-acting compound selected from the group of oxides, hydroxides . . . (see, for example, paragraphs [0023] and [0036]). This, however, is a completely different class of materials. There is no suggestion or motivation for the skilled person to focus on the amides claimed in the present invention.

Schmitt et al. (cited for disclosure of an initiator) do not provide that which is missing from Eckhardt et al. Withdrawal of this rejection is respectfully requested.

The Examiner rejected claims 1-4, 6-11, and 13-15 under 35 U.S.C. §103(a) as being unpatentable over Zech et al. (U.S. Patent No. 6,894,144 or WO 01/17483). Claim 6 has been cancelled, rendering the rejection of claim 6 moot. Without acquiescing to the Examiner's rejection or supporting allegations and merely to expedite prosecution of the present application, claims 1 and 11-14 have been amended to recite a dental composition including, among other things, a compound having an SO_2-NH group, wherein the compound is represented by the recited formulas.

Insofar as this rejection applies to the presently pending claims, it is respectfully traversed. As currently claimed, each of the independent claims incorporates a compound having an SO_2-NH group, wherein the compound is represented by at least one of the following formulas:

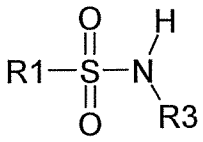


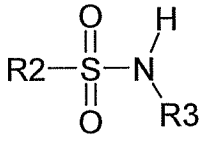
wherein R1-R5 are as recited in the claims. The cited document does not disclose a dental composition comprising an SO_2-NH group-containing component as recited in the presently pending claims. Zech et al. do not specify the amides which might be used as inert diluents.

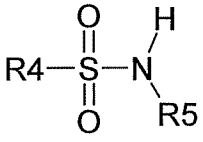
There is no disclosure that the amides have to comprise an SO_2-NH group. The phrase "amides of alkylsulfonic acids and arylsulfonic acids" (Zech et al., column 6, lines 14-15) does not only comprise amides having an SO_2-NHR group, but also amides comprising an SO_2-NH_2 group or an SO_2-NR_2 group, wherein R is different from H.

Further, there is no teaching or suggestion in Zech et al. that selecting such compounds would provide any advantage. As discussed above, it has been found that by incorporating aryl sulfonic acid amide or alkyl sulfonic amide as presently claimed into the polyether containing composition, the setting speed can be enhanced. Thus, the amides used are not inert in the sense they are described by Zech et al. An inert diluent typically does not have any effect on the reaction speed.

Thus, in order to arrive at the claimed subject matter, the person skilled in the art has to make the following selections: (1) identify from the group of possible compounds suggested as inert diluents the esters or amides of alkylsulfonic acids and arylsulfonic acids; (2) select the amides and not the esters of said acids; (3) select the compounds represented by at least one of the following formulas:







and (4) select each of groups R1-R5 as presently claimed (e.g., wherein R1 is a moiety selected from the group consisting of C_1-C_{22} alkyl, C_2-C_{22} alkenyl, C_2-C_{22} alkinyl, C_7-C_{22} arylalkyl and C_3-C_{22} cycloalkyl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and/or up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S, R2 is a moiety selected from the group consisting of C_6-C_{18} aryl, C_7-C_{22} alkylaryl, C_2-C_{22} cycloalkylaryl, C_7-C_{22} alkenylaryl and C_7-C_{22} alkinylaryl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S, R3 is H, R1, or R2, R4 is R1 or R2, and R5 is a chemical linkage to a polymer).

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The Examiner alleged that the scope of the claims is broader than the showing in the Declaration of Dr. Thomas Klettke. (Office Action dated September 25, 2009, page 3.) Although this is true, the experimental data in the Declaration establish that Zech et al.'s mere disclosure of "amides of alkylsulfonic acids and arylsulphonic acids" used as inert diluents (emphasis added) does not necessarily disclose or suggest the subject matter of the present claims. Applicants submit that the dental compositions of the present claims offer enhanced setting speeds and that Zech et al. fail to offer any guidance to one of skill in the art to select the presently recited components and to form a composition therewith.

Applicants submit that the compounds recited in the present claims are not obvious in light of Zech et al.'s disclosure. Given the number of variables which must be selected, the nature and significance of the differences between Zech et al. and the present claims, and given the unpredictable nature of the technology, Applicants submit that the enhanced setting speeds would not be obvious to one of ordinary skill in the art. Zech et al. have provided no guidance to

aid one of skill in the art to choose any particular amides of alkylsulfonic acids and arylsulfonic acids, much less the presently recited compounds. Further, there is no suggestion or motivation for the skilled person to focus on the amides claimed in the present invention.

Withdrawal of this rejection is respectfully requested.

New Claims

New claims 16-25 depend ultimately or directly from one of independent claims 1 and 11-14. Thus, Applicants submit that new claims 16-25 are patentable for at least the reasons set forth herein above regarding the independent claims and by reason of their own respective recitations.

For example, new claims 16, 18, 20, 22, and 24 each recite that component (b) is present in an amount of about 0.01% by weight to about 10.00 % by weight.

Applicants have found that selecting such amounts of component (b) provides advantages. For example, by selecting the recited amounts of component (b) of "about 0.01% by weight to about 20.00 % by weight" (e.g., claim 4) or "about 0.01% by weight to about 10.00 % by weight" (e.g., claims 16, 18, 20, 22, and 24), the setting speed can be enhanced. Such advantage obtained by selecting the recited amounts of recited component (b) is not disclosed or suggested in the cited documents.

For example, Eckhardt et al. disclose constituents of catalyst components that include 0 to 95 weight percent of at least one inert diluent (paragraph [0033]). Zech et al. disclose catalyst components containing at least one diluent as component (E) in an amount of 0 to 95 weight percent, preferably 10 to 90 weight percent, and particularly preferably 40 to 85 weight percent, relative to the overall weight of the base component (column 5, line 44 to column 6, line 19).

As discussed herein above, Applicants submit that Eckhardt et al. and Zech et al. both fail to provide a suggestion or motivation for the skilled person to choose the particular compounds of component (b) recited in independent claims 1 and 11-14. Applicants further submit that Eckhardt et al. and Zech et al. also both fail to direct one of skill in the art to further select the

recited amounts of component (b) in the dental compositions recited in claims 4 (i.e., about 0.01% by weight to about 20.00 % by weight) and claims 16, 18, 20, 22, and 24 (i.e., about 0.01% by weight to about 10.00% by weight).

Each of claims 17, 19, 21, 23, and 25 recites that the initiator in the claimed dental composition includes a substituted alkyl sulfonium salt in combination with the amounts of component (b) recited in claims 16, 18, 20, 22, and 24. Thus, Applicants further submit that the cited documents fail to disclose or suggest an initiator including a substituted alkyl sulfonium salt in combination with the other aspects of claims 1 and 11-14 (e.g., compounds of component (b)) and the amounts of component (b) recited in claims 16, 18, 20, 22, and 24.

A prompt notification of allowance of new claims 16-25 is requested.

Summary

It is respectfully submitted that the pending claims 1-4 and 7-15 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives at the telephone number listed below if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted
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December 14, 2009
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CERTIFICATE UNDER 37 CFR §1.8:
The undersigned hereby certifies that this paper is being transmitted via the U.S. Patent and Trademark Office electronic filing system in accordance with 37 CFR §1.6(a)(4) to the Patent and Trademark Office addressed to the Commissioner for Patents, Mail Stop **RCE**, P.O. Box 1450, Alexandria, VA 22313-1450, on this 14th day of December 2009.

By: Dani Moore
Name: Dani Moore